

REMARKS

Claims 1, 3-22, 24-37 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejection in view of the amendments and remarks contained herein.

CLAIM OBJECTIONS

Claim 16 stands objected to because no space is provided between "deviceincluding." By this amendment, a space is inserted between "device" and "including." Accordingly, this objection should be moot.

DOUBLE PATENTING

Claims 2-5, 7-15, 20, and 21 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 5, 11, 13, 14, 15, and 21 of co-pending application no. 09/865,046 in view of Nakai, et al. (U.S. Patent No. 6,144,429). This rejection is respectfully traversed. Notwithstanding, a terminal disclaimer under 37 C.F.R. 1.321(c) is submitted herewith. Accordingly, this rejection should be moot.

REJECTION UNDER 35 U.S.C. § 103

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakai, et al. (U.S. Pat. No. 6,144,429) in view of Katsuya, et al. (U.S. Pat. No. 6,081,310). This rejection is respectfully traversed.

Claim 1 calls for: a first lead provided on the first substrate, the first lead having a metal film, and an average diameter of crystal grains in the metal film being larger than an average diameter of crystal grains in the reflective film. Crystal grain size in reflective films containing silver may suppress reflectance. The claimed structure ensures proper reflectance. Neither Nakai nor Katsuya appear to teach such a structure. As such, the combination of references does not yield the claimed invention.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakai, et al., in view of Sakamoto, et al. (U.S. Patent No. 6,366,331 B1). This rejection is respectfully traversed. Claim 6 depends (indirectly) upon claim 1 discussed above. Applicant respectfully submits that claim 6 is in condition for allowance for at least the same reasons as set forth above with respect to independent claim 1.

Claims 16-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakai, et al. This rejection is respectfully traversed.

Claim 16 calls for the reflectance of the protective film for light at a shorter wavelength end of visible light is higher than that for light at a longer wavelength end. This feature solves a particular problem associated with conventional designs. That is, as described in applicant's specification at page 33, paragraph 00111, lines 8-11, the light reflected by the reflective film 302 contains blue light components and thus is yellowish. If the reflective film 302 is used alone, color reproducibility would be adversely affected in a color display mode. The arrangement claimed in claim 16 prevents all light reflected by the reflective conductive film 312 and the protective film 303 from becoming yellowish. See page 33, paragraph 00111, lines 13-15. No reference of record discloses the claimed arrangement. Further, one skilled in the art

would not appreciate that the claimed reflectance solves the above problem absent the teachings of the present invention. As such, the claimed arrangement is not obvious.

Claims 17 and 18 depend from claim 16 and should be in condition for allowance for at least the same reasons as set forth above.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Okumura, et al. (U.S. Patent No. 6,147,728). This rejection is respectfully traversed.

Claim 19 calls for the distance from a white coordinate point to a coordinate point of the light which passes through the blue color layer is larger than the distance from the white coordinate point to the coordinate point of the light which passes through the red color layer in an xy chromaticity diagram. As stated in the specification at page 52, paragraph 00164, lines 2-7, the claimed arrangement causes the light containing the enhanced blue light components to be reflected by the reflective film 302, which attenuates the blue light components, and is emitted to the viewer. As such, the light reflected towards the viewer is white due to a balance of the intensity and amount among red, green, and blue. No reference of record discloses the claimed arrangement. Further, one skilled in the art would not appreciate that the claimed specified distances solve the above problem absent the teachings of the present invention. As such, the claimed arrangement is not obvious.

Claims 22 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakai, et al. in view of Katsuya, et al. Claim 22 calls for: a first lead provided on the first substrate, the first lead having a metal film, and an average diameter of crystal grains in the metal film being larger than an average diameter of

crystal grains in the reflective film. The argument set forth above with respect to claim 1 are equally applicable to the subject matter of claim 22.

Claim 23 is cancelled.

Claims 24-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakai, et al. This rejection is respectfully traversed. Claim 24 calls for the reflectance of the protective film for light at a shorter wavelength end of visible light is higher than that for light at a longer wavelength end. The argument set forth above with respect to claim 16 is equally applicable to claim 24.

Claims 25 and 26 depend from claim 24 and should be in condition for allowance for at least the same reasons as set forth above.

NEW CLAIMS

New claims 27-37 are presented herein. Favorable consideration of these new claims is respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Feb. 20, 2003

By: 

G. Gregory Schivley

Reg. No. 27,382

Bryant E. Wade

Reg. No. 40,344

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600



ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Amended) A liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate, the liquid crystal device comprising:
 - a reflective film which is provided on the first substrate and contains silver;
 - a protective film provided on the reflective film;
 - a first transparent electrode provided on the protective film; [and]
 - an alignment film provided on the first transparent electrode; and
 - a first lead provided on the first substrate;

wherein the first lead has a metal film, and an average diameter of crystal grains in the metal film is larger than an average diameter of crystal grains in the reflective film.
3. (Amended) The liquid crystal device according to claim [2] 1,
wherein the average diameter of the crystal grains in the reflective film is in the range of 0.1 nm to 6.0 nm, and
the average diameter of the crystal grains in the metal film is in the range of 2.0 nm to 20 nm.
4. (Amended) The liquid crystal device according to claim [2] 1.

wherein the metal film is provided on the reflective film.

5. (Amended) The liquid crystal device according to claim [2] 1, wherein the first lead further comprises a metal oxide film deposited on the metal film.

6. (Amended) The liquid crystal device according to claim [2] 1, further comprising:

a second transparent electrode provided on the second substrate; and
a driver IC for supplying output signals to the first lead,
wherein the first lead is connected to the second transparent electrode with a conductor.

8. (Amended) The liquid crystal device according to claim [2] 1, further comprising:

a second lead provided on the first substrate; and
a driver IC for driving the liquid crystal,
wherein the second lead comprises a metal film, and an input signal is supplied to the driver IC through the second lead.

16. (Amended) A liquid crystal device including a first substrate and a second substrate opposing each other and a liquid crystal enclosed in a gap between the first substrate and the second substrate; the liquid crystal device comprising:

a reflective film which is provided on the first substrate and contains silver; and
a protective film provided on the reflective film,
wherein the reflectance of the protective film for light at a shorter wavelength end
of visible light is higher than that for light at a longer wavelength end.

22. (Amended) A method for making a liquid crystal device including a first
substrate and a second substrate opposing each other and a liquid crystal enclosed in a
gap between the first substrate and the second substrate, the method comprising the
steps of:

- providing a reflective film containing silver on the first substrate;
- providing a protective film on the reflective film;
- providing a metal film constituting a lead on the first substrate;
- providing a first transparent electrode on the protective film; and
- providing an alignment film on the first transparent electrode;

wherein an average diameter of crystal grains in the metal film is larger than an
average diameter of crystal grains in the reflective film.